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THE IDENTITIES OF THE SAND CHERRIES OF EASTERN AMERICA.

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THE Sand Cherries of eastern America long passed as a highly variable species under the inclusive name *Prunus pumila* L. To be sure, other species, such as *P. susquehanae* Willd.,¹ *P. depressa* Pursh² and *P. cuneata* Raf.,³ were proposed; but not until Bailey,⁴ in 1892, took up *P. cuneata* did modern botanists recognize that at least two species were passing as *P. pumila*. Subsequently *P. pumila* and *P. cuneata* have been maintained as species, but neither in Bailey's several treatments nor in Wight's *Native American Species of Prunus*⁵ have more than these two been recognized as occurring in eastern America.

Living as a boy on the banks of the Penobscot and subsequently botanizing extensively from New England to Labrador, the writer has always been familiar with the Sand Cherry, "Beach Plum" or *Cerise de Sable* which forms such extensive carpets, with its absolutely prostrate and repent rope-like branches trailing in the sands or gravels or over the ledges of the river-banks of New Hampshire, Maine, New Brunswick and Quebec, where its juicy black "plums" are highly prized either raw, cooked or as the source of a rich syrup-like jelly. This is the shrub described by Michaux⁶ as *Cerasus pumila*: "Fruticulus prostratus. Fructus parvus, niger, edulis,"

¹ Willd. Enum. Pl. Hort. Berol. 519 (1809).

² Pursh, Fl. Am. Sept. i. 332 (1814).

³ Raf. Ann. Nat. 11 (1820).

⁴ Bailey, Cult. Native Plums and Cherries, 63 (1892).

⁵ Wight, Native American Species of Prunus,—U. S. Dept. Agric. Bull. No. 179 (1915).

⁶ Michx. Fl. Bor.-Am. i. 286 (1803).

Michaux's material, as shown in his herbarium and by his journal, coming from Lake St. John and Mistassini River in northern Quebec. This prostrate northern shrub, which abounds from eastern Gaspé Co. to Mistassini River, Quebec, southward across New Brunswick, Maine and New Hampshire, extending westward at least to the Ottawa, the Hudson and the Delaware systems, was described by Pursh as *Prunus depressa*, with the illuminating comment: "This low shrub, which spreads its branches very much and does not rise above one foot from the ground, is known by the name of *Sand-cherries*. The fruit is black, small, and agreeably tasted."

Familiar with Pursh's *Prunus depressa*, which in 1892 Bailey treated¹ as typical *P. pumila* but which he subsequently seems to have ignored, the writer was, therefore, puzzled to make his own experience fit Bailey's later descriptions of *P. pumila*: "Decumbent at the base when old, but the young growth strictly erect and often reaching 5-8 ft. in height, . . . fruit . . . small and usually scarcely edible"² or Wight's equally definite: "shrub 1½ to 5 feet high, . . . erect when young." When, however, on visiting the sand dunes of Lake Ontario in Oswego County, New York, with Professors Wiegand and Eames, he made the acquaintance of the upright shrub of the Great Lakes, it at once became apparent that the Great Lake *P. pumila* was quite distinct from *P. depressa*. Differing in its prostrate habit, more palatable fruit and more northeastern range, *P. depressa* is also distinguished by its leaves being less acuminate and often obtusely spatulate, thinner, less prominently veiny but more glaucous beneath, and usually with more crenate teeth, by its commonly shorter and less fimbriate stipules and by its more elongate, ellipsoid rather than subglobose or ovoid, stones.

In determining to which of these shrubs we should apply the name *Prunus pumila*, Bailey, as already noted, stated that "Linnaeus' characterization" shows "that Linnaeus meant to describe the prostrate plant." But this is not indicated by the definite statement of Linnaeus that *P. pumila* has "the stature of *Amygdalus nana*,"³ a species "2-5 feet high."⁴ Linnaeus took the name *pumila* from

¹ "Miller's figure, so far as it goes, and Linnaeus' characterization, show that Linnaeus meant to describe the prostrate and long-leaved plant"—Bailey, *Cult. Native Plums and Cherries*, 62 (1892).

² Bailey, *Cycl. Am. Hort.* 1450 (1901).

³ *L. Mant.* 75 (1767).

⁴ Boissier, *Fl. Orient.* ii. 644 (1872).

Cerasus canadensis pumila of Duhamel.¹ Duhamel's description gives little information but the fuller account by Miller (also cited by Linnaeus) states that the shrub is at least "Three or four feet high."² It is thus clear that *P. pumila* is the upright narrow-leaved shrub so characteristic of the Great Lake region.

The western range of *Prunus depressa* is not yet determined. It reaches the Ottawa valley and in the Connecticut system extends south into Franklin County, Massachusetts. Torrey's *Cerasus pumila* with "Stem trailing, 2-3 feet long,"³ from Lake Champlain and the Hudson may belong here but all the specimens seen from the Champlain Valley in Vermont are *P. cuneata*. Here apparently belongs the shrub of the sandy shore of Long Lake in the Adirondacks, described by Peck⁴ as "the prostrate trailing" *P. pumila*; and the shrub of the flats of the Delaware River is clearly *P. depressa*, as Porter's description of the two Pennsylvanian species indicates: "One [*P. pumila*]⁵ [i. e. *P. depressa*] grows on the islands and flats of the Delaware, which are composed of gravel and cobblestone drift washed bare by the floods, and are treeless. Here it grows, sending out on all sides strong prostrate branches, often as thick as a man's arm, which form flat patches six feet or more in diameter. The branches are so close together that they hold the fine sand and mud and create low mounds or hillocks, and in the proper season the spaces between them are black with the fruit. The other [*P. cuneata*]⁶ occurs in southeastern Pennsylvania on the borders of swamps and remote from river bottoms. It is strictly erect and attains the height of four feet."⁷

In studying the descriptions of the various Sand Cherries it has become apparent that *Prunus susquehanae* Willd. (1809) is the earliest and entirely valid name for the erect shrub with oblong to oblong-obovate leaves which was described in 1820 by Rafinesque as *P. cuneata*. Under the latter name this species is thus well described by Bailey: "The leaves are *short* and usually *blunt*, obovate, spatulate or when full grown sometimes elliptic-ovate, . . . the teeth few

¹ Duham. *Traité des Arbres et Arbustes* i. 149 (1755).

² Mill. *Fig. Pl.* i. 60, t. 89. fig. 2 (1760).

³ Torr. *Fl. N. Y.* i. 195 (1843).

⁴ Peck, 34th Ann. Rep. State Mus. N. Y. 53 (1891).

⁵ Name inserted in quotation by L. H. Bailey.

⁶ Name inserted in quotation by L. H. Bailey.

⁷ Porter as quoted by Bailey, *The Cultivated Native Plums and Cherries*, 64 (1892).

and the points appressed."¹ Similarly Wight describes it: "Leaves broadly lanceolate . . . or sometimes even obovate to elliptic or elliptic-obovate . . . usually serrate from below the middle . . . pale or even somewhat glaucous-like below." How closely these descriptions of *P. cuneata* match Willdenow's account:

"*17. PRUNUS *Susquehanae*.

P. pedunculis subsolitariis, foliis obovato-oblongis, subtus glaucis, serratis, basi integerrimis.

Prunus Susquehanae Hortulan.

Habitat in America boreali."

The identity of *Prunus susquehanae* and *P. cuneata* is further shown by the fact that this shrub is well known in eastern Pennsylvania, as indicated by Porter's statement above quoted, by Long's reference to it as "on rocky slopes and summits of the Poconos and Kittatinnies,"² by Clute's getting it on a "Wooded hillside"³ of the Upper Susquehanna, by characteristic specimens from Lancaster County nearer the mouth of the Susquehanna, and by Rafinesque's citation of the original locality of his *P. cuneata*: "On the mountains of Pennsylvania."

Briefly summarized, the nomenclature and ranges of our three Sand Cherries may be stated as follows.

PRUNUS PUMILA L. Mant. 75 (1767); Bailey, Cycl. Am. Hort. 1450 (1901); Wight, Native Am. Sp. Prunus, 65 (1915). *Cerasus canadensis* Mill. Gard. Dict. ed. 8. (1768). *C. glauca* Moench, Meth. 672 (1794). *C. pumila* (L.) Michx. Fl. Bor.-Am. i. 286 (1803) as to name-bringing synonym only.

The following are characteristic specimens. NEW YORK: sand dunes by L. Ontario, Selkirk, *Fernald, Wiegand & Eames*, no. 14,355. ONTARIO: shore of L. Ontario, Wellington, *Fowler*; Pt. Edward, L. Huron, *J. Macoun*, no. 34,728; Johnston's Harbor, L. Huron, *J. Macoun*, no. 34,727; sandy shore of L. Superior, Agawa Bay, *Pease*, no. 18,049. MICHIGAN: sand hills, New Buffalo, *Lansing*, no. 3259; Castle Park, *Greenman*, no. 2408; sandy soil, border of Douglas Lake, *Ehlers*, no. 316; gravelly soil, Goose Island, *Ehlers*, no. 429. INDIANA: sand dunes by L. Michigan, Indiana Harbor, *Hill*, no. 118; sand ridges near L. Michigan, Edgemoor, *Lansing*, no. 2695; tops of new dunes, Port Chester, *Peattie*. ILLINOIS: shores of L. Michigan, Chicago, *Vasey et al.*; sand dunes by L. Michigan near Beach, *Greenman*, nos. 1992, 2025. WISCONSIN: Rock Co., *Hale*.

¹ Bailey, l. c. 63 (1892).

² Long, RHODORA, xviii. 69 (1916).

³ Clute, Fl. Upper Susq. Suppl. 1: 4 (1901) as *P. pumila*.

P. DEPRESSA Pursh, Fl. Am. Sept. i. 332 (1814). *Cerasus pumila Michx.* Fl. Bor.-Am. i. 286 (1803) as to shrub described. *P. pumila* Torr. Fl. N. Y. i. 195 (1843), not L.

The following are typical specimens. QUEBEC: beach of Grand River, Gaspé Co., *G. H. Richards*; ledgy banks of Restigouche River, Matapedia, *Fernald*; Grand Discharge, Lake St. John, *Kennedy* (form with unusually broad leaves and short stones); shores, Oka, *Victorin*, no. 670. NEW BRUNSWICK, Tom's Island, Restigouche River, *Hay*. MAINE: gravel beach of St. John River, Township XII, Range 16, *St. John & Nichols*, no. 2357; gravelly shore of St. John R., St. Francis, *Fernald*, no. 28; gravelly river beach, Fort Kent, *Fernald*, no. 2292, *Robinson & Fernald*, no. 223; *Pease*, no. 2333; beach of Aroostook River, Fort Fairfield, *Fernald*, no. 1951; argillaceous ledges by Penobscot River, Winn, *Fernald & Long*, no. 13,947; argillaceous ledges by Penobscot R., Milford, *Fernald*, no. 13,945; rocky bank of Kennebec River, Caratunk, *Fernald*; sandy shores of Kennebec R., Skowhegan, *Furbish*; river gravel of Sandy R., Phillips, *Knowlton*; sandy shore of Sandy R., Farmington, *Knowlton*; shore of Androscoggin R., Gilead, *Furbish*; ledgy shore of Kennebec R., Waterville, *Fernald*, no. 2611. NEW HAMPSHIRE: sands and gravels of Pemigewasset R., Plymouth, *Faxon, Fernald*, no. 11,738, *Knowlton*; sandy and gravelly beach of Pemigewasset R., Ashland, *Fernald*, no. 15,242; argillaceous ledges by Connecticut R., Bath, *Fernald*, no. 15,544; sandy and rocky shores of Connecticut R., Planfield, *Eggleston*; gravelly bank of Connecticut R., Walpole, *Fernald*, no. 123, *Blanchard et al.* VERMONT: gravel of White R., Hartland, *Knowlton*; Hartland, *Eggleston*, no. 1984; Bellows Falls, *Eggleston*, no. 2673; sandy banks of West R., Newfane, *Grout*. MASSACHUSETTS: bank of Deerfield R., Charlemont, *Hunnewell, Macbride & Torrey*. ONTARIO: vicinity of Ottawa, *Rolland*, no. 7159.

P. SUSQUEHANA Willd. Enum. Pl. Hort. Berol. 519 (1809). *P. cuneata* Raf. Ann. Nat. 11 (1820); Bailey, Cult. Native Plums and Cherries, 63 (1892); Wight, Native Am. Sp. Prunus, 67 (1915). *P. pumila*, var. *cuneata* (Raf.) Bailey, Cycl. Am. Hort. 1451 (1901).

The following are characteristic specimens. MAINE: Fryeburg, *J. Blake*; sandy shore of Lovewell P., Fryeburg, *Farlow*; South Poland, *Furbish*; Brunswick, *Furbish*; common and characteristic on dry sandy barrens, Limington, *Fernald, Long & Norton*, no. 13,944. NEW HAMPSHIRE: sandy margin of West Ossipee P., *Wm. Scott*; with *Hudsonia* on shore of L. Ossipee, *Farlow*; border of pitch pine woods, Ashland, *Fernald*, no. 15,240; hillside, open hard woods, Derry, *Batchelder*; borders of sandy woods, Nashua, *Robinson*, no. 712. VERMONT: sand plain, Essex Junction, *Knowlton*; sand banks, Burlington, *Eggleston*, nos. 7 and 1982; sand plain, Colchester, *Blake*, no. 2143. MASSACHUSETTS: low ground near Bartholemew's P., Peabody, *Sears*; gravel pit, Lowell Junction, *Pease*, no. 2450; dry bank, Tewksbury, *Knowlton*; Concord, *Hoar*; sandy hill, Wilmington,

Williams et al.; rocky roadside, Woburn, *Pease*, no. 7659; clearing in dry woods, Walpole, *Rich*; Powisset Cliff, Dover, *Pease*, no. 7747; Hawk Hill, Blue Hills, *Kidder*; rocky shrubby hill, Sharon, *Williams*; dry ground, Norfolk, *Ware et al.*; sandy woods, Franklin, *Hunnewell*; dry sandy clearing, Lakeville, *Fernald & Long*, no. 9707; open sandy soil near Darby Station, Plymouth, *Fernald, Hunnewell & Long*, no. 9708; sand plain, Montague, *Fernald et al.*; wet sand by Connecticut R., Gill, *St. John & Weatherby*; dry ledges at summit of Mt. Tom, *Forbes & Wheeler*; sand, Southwick, *Murdoch & Schweinfurth*; Alum Hill, Sheffield, *Hoffmann*. RHODE ISLAND: dry soil, Cumberland, *Knowlton*; Providence, *Williams*. CONNECTICUT: Plainville, *L. Andrews*, no. 222; sandy roadside, Southington, *Bissell*, no. 194; exposed top of Wolcott Mt., Southington, *Blewitt*, no. 1734; dry exposed ledges, Waterbury, *Blewitt*, no. 205. NEW YORK: Ausable Point, *Eggleston*; sandy thicket, Albany, *House*, no. 6046; South Hill, Ithaca, *F. C. Curtice*; hummocks, South Hill Marsh, Ithaca, *Eames & Wiegand*, no. 2671. NEW JERSEY: high rocky hills, High Point, *Mackenzie*, no. 4197. PENNSYLVANIA: serpentine barrens, near Pleasant Grove, Lancaster Co., *Heller & Small*. MICHIGAN: sandy ground near Au Gres, Arenac Co., *Dodge*, no. 4; Agricultural College, *Wheeler*; sand dunes by L. Michigan, Indiana Harbor, *Hill*, no. 117. WISCONSIN: sandy ridges and shores, *Schuette*. MINNESOTA: Spring Grove, *Rosendahl*, no. 307. MANITOBA: Lake Winnipeg Valley, *Bourgeau*.

GRAY HERBARIUM.

NOTES ON NEW ENGLAND HEPATICAE,—XVII.¹

ALEXANDER W. EVANS.

IN the fifth series of these Notes² the writer recognized the genus *Ricciella* A. Br. as valid, separating it from *Riccia* L. on the basis of certain anatomical differences in the thallus. It has since been demonstrated that these differences are inconstant and that the genus *Ricciella* ought not to be maintained.³ The four New England species referred to *Ricciella* should therefore be known as *Riccia crystallina* L., *Riccia fluitans* L., *Riccia membranacea* Gottsche & Lindenb. and *Riccia Sullivantii* Aust.

Another genus based on equally vague anatomical characters is *Neesiella* Schiffn., of which two species, *N. pilosa* (Hornem.) Schiffn.

¹ Contribution from the Osborn Botanical Laboratory.

² RHODORA 9: 56. 1907.

³ See EVANS, Bryologist 25: 81. 1922. See also Howe, North Am. Flora 14: 11. 1923.